

**STORMWATER FEASIBILITY
REVIEW REPORT
FOR
Holly Street Townhomes**

Issaquah, WASHINGTON

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Date Prepared: December 9, 2021
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Holly Street Townhomes

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1 PROJECT OVERVIEW

This report is intended to provide an overview of stormwater requirements associated with future development of parcels 8844300030, -0031, -0032, -0033, -0027, and -0026 in Issaquah, Washington. The project site borders NW Holly St to the south, 7th avenue NW to the east, and Newport way NW to the west. Condominiums, a single-family home, and a business border the north and northwest corner of the site. The six existing parcels are located within the valley floor area of downtown Issaquah. Parcels -0033 and -0032 are fully lawn area while the remaining four parcels each have a single home and associated driveway.

2 EXISTING AND DEVELOPED CONDITIONS

Per the City of Issaquah Addendum and Figure 7 therein, the site is located within the valley floor area of downtown Issaquah. As such, the pre-development condition can be assumed to be existing conditions rather than forested conditions. Table 1.1 below summarizes the existing conditions for the disturbed areas.

Predeveloped Areas		
	(sf)	(ac)
Driveways, flat	9535	0.219
Sidewalks, flat	529	0.012
Rooftops, flat	7618	0.175
C, Lawn, flat	39907	0.916
<i>Total Onsite Area</i>	<i>57589</i>	<i>1.322</i>
Impervious	1595	0.037
C, Lawn, flat	1688	0.039
<i>Total Offsite Area</i>	<i>3303</i>	<i>0.076</i>

Table 1.1

The project proposes the construction of eight buildings with 32 units as well as associated community space, roads, and sidewalks. In addition to the onsite improvements, the project will also provide frontage improvements along 7th Ave NW. A summary of the proposed developed areas is included in Table 1.2 below.

Developed Areas		
	(sf)	(ac)
Roads, flat	11971	0.275
Sidewalks, flat	5527	0.127
Rooftops, flat	24665	0.566
C, Lawn, flat	15426	0.354
<i>Total Onsite Area</i>	57589	1.322
Impervious	1908	0.044
C, Lawn, flat	1395	0.032
<i>Total Offsite Area</i>	3303	0.076

Table 1.2

3 STORMWATER REQUIREMENTS

Development of the subject property will be required to comply with the most current version of the City of Issaquah Addendum, which, at this time is the 2017 Stormwater Design Manual Addendum. This publication locally modifies the Washington State Department of Ecology’s 2012 Stormwater Management Manual for Western Washington as amended in 2014 (2014 SWMMWW). For any new development project resulting in 5,000 square feet or more of new plus replaced hard surface, all 9 Minimum Requirements will apply to the project.

This project proposes 42,163 square feet of new plus replaced hard surface, so all 9 Minimum Requirements apply.

3.1 Flow Control Requirements

The following circumstances require achievement of the standard flow control requirement for Western Washington:

- Projects in which the total effective impervious surfaces are 10,000 square feet or more in a threshold discharge area; or
- Projects that convert 3/4 acres or more of vegetation to lawn or landscape, or convert 2.5 acres or more of native vegetation to pasture in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site; or
- Projects that through a combination of hard surfaces and converted vegetation areas cause a 0.10 cubic feet per second (cfs) increase in the 100-year flow frequency from a threshold discharge area as estimated using the Western Washington Hydrology Model (WWHM) or other approved model and one hour time step (or a 0.15 cfs increase using 15- minute time steps).

This project proposes 42,959 square feet of impervious so it will trigger the flow control minimum requirement. The City of Issaquah requires that public and private runoff be separated so two vaults were sized for this project – one to serve the public ROW and one to serve the remaining private areas.

3.2 Water Quality Requirements

The following project characteristics require construction of stormwater treatment facilities:

- Projects in which the total of pollution generating hard surface (PGHS) is 5,000 square feet or more in a threshold discharge area of the project, or
- Projects in which the total of pollution-generating pervious surfaces (PGPS) – not including permeable pavements - is three-quarters (3/4) of an acre or more in a threshold discharge area, and from which there is a surface discharge in a natural or man-made conveyance system from the site.

This project proposes 11,971 square feet of pollution generating hard surface. As such, basic water quality treatment will be required for this site.

4 STORMWATER DESIGN

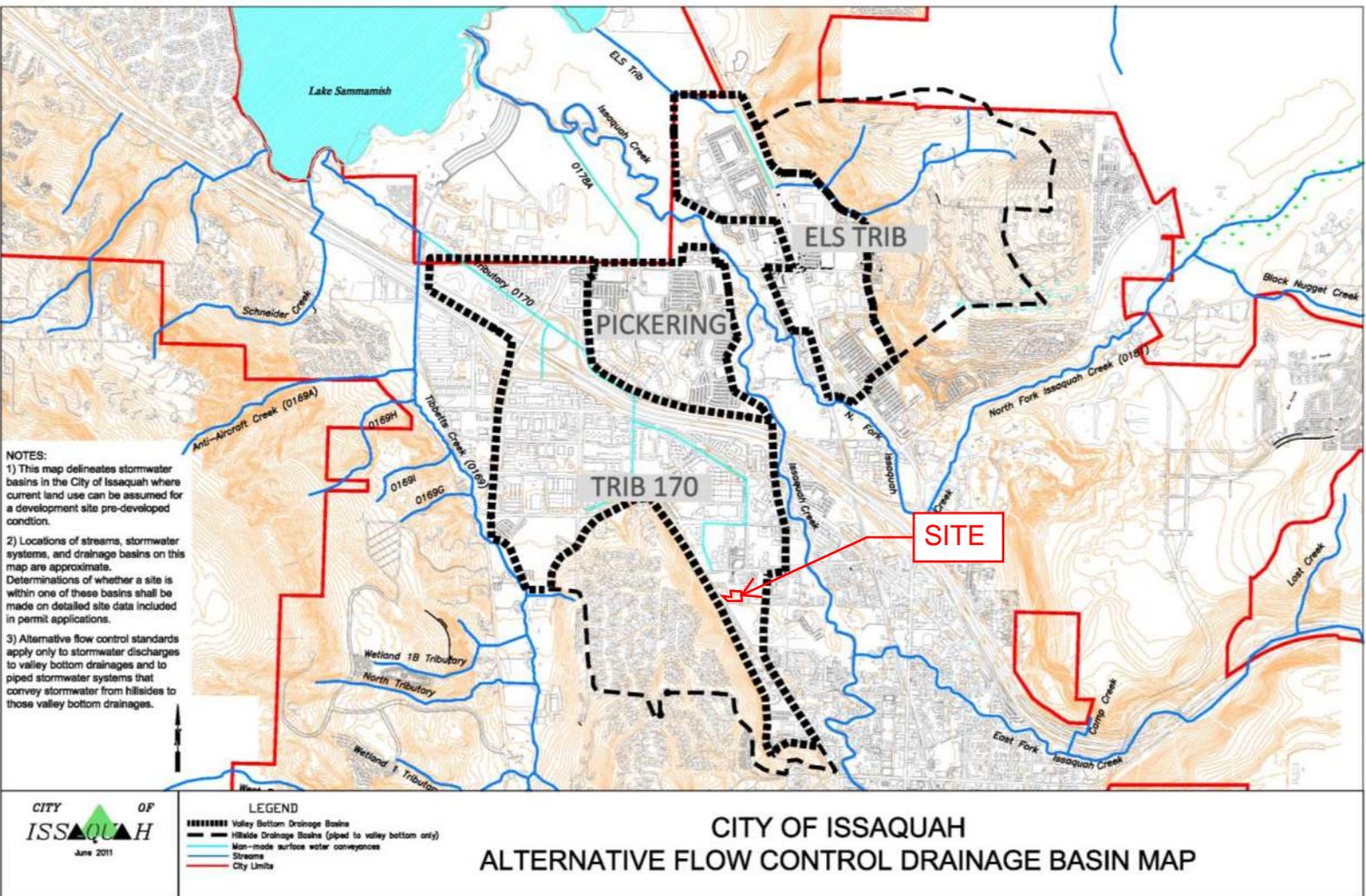
Tables 1.1 and 1.2 above summarize the areas used for modeling the two vaults. All runoff from improved frontage areas will be treated by the public vault while onsite developed areas will be treated by the private vault. The 2012 Western Washington Hydrologic Model (WWHM) was used to model the two proposed vaults.

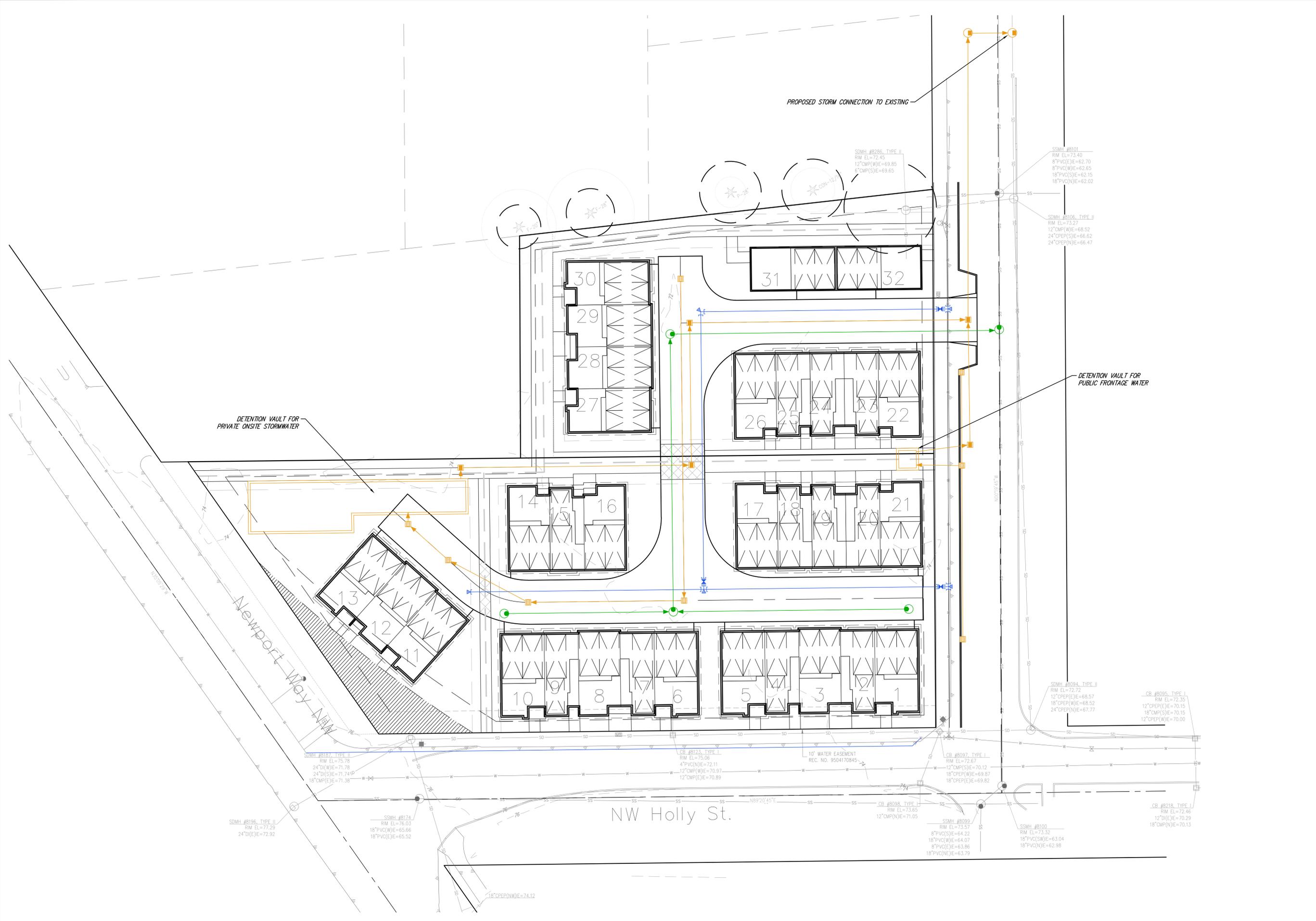
The public vault is proposed to be 5 feet by 5 feet with 4 feet of live storage (totaling to 100 cubic feet) and located underneath the sidewalk which intersects with the eastern property line in the center of the site. The private vault is proposed to cover an area of 1,984 square feet with 5 feet of live storage (totaling to 9,920 cubic feet) and located underneath the private community space in the western portion of the site.

Basic Water quality treatment is required and will be provided through the use of dead storage in the vaults.

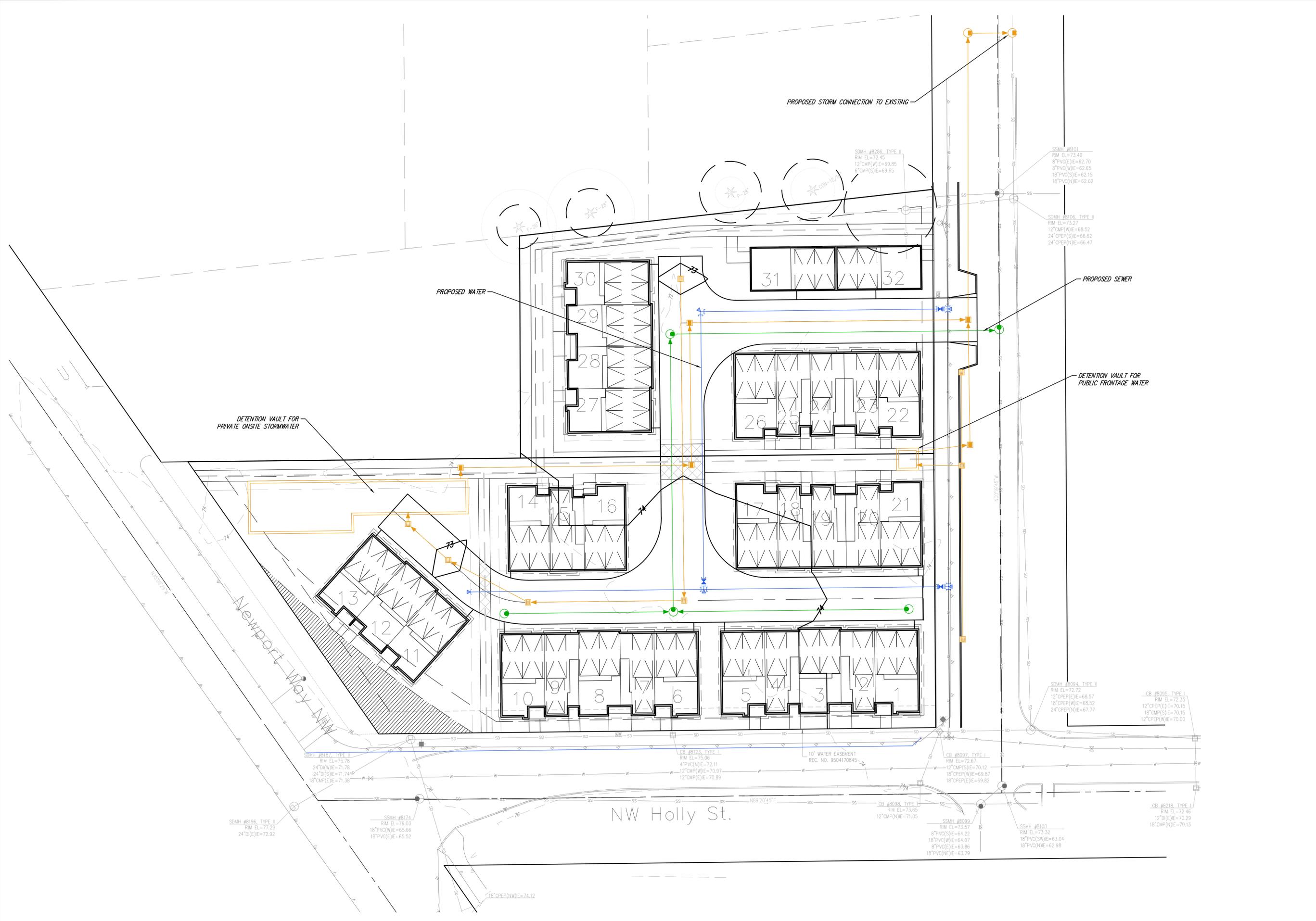
Appendix A Exhibits

Figure 2-5. Central Issaquah Area Alternative Flow Control Standard Map





DATE	DEC. 2021	DESIGNED	KATIE LANE
SHEET	1	DRAWN	KATIE LANE
PROJECT NUMBER	21416	APPROVED	HOLLY HEAVIN, P.E.
			HOLLY HEAVIN, P.E.
			PROJECT MANAGER
<p>DRAINAGE PLAN HOLLY STREET TOWNHOMES BLUE FERN DEVELOPMENT, LLC 18300 REDMOND WA, SUITE 120 REDMOND, WA 98052</p>			
<p>CIVIL ENGINEERING LANDSCAPE ARCHITECTURE PLANNING SURVEYING</p> <p>CORE DESIGN 12100 NE 195th St, Suite 300, Bothell, Washington 98011 425.885.7877</p>			
NO.	REVISIONS	DATE	



DATE	DEC. 2021	DESIGNED	KATIE LANE	DRAWN	KATIE LANE	APPROVED	HOLLI HEAVRIN, P.E.
SHEET	OF						
1	1						
PROJECT NUMBER		21416					
<p>CONCEPTUAL GRADING & UTILITY PLAN HOLLY STREET TOWNHOMES BLUE FERN DEVELOPMENT, LLC 18300 REDMOND WA, SUITE 120 REDMOND, WA 98052</p>							
<p>CORE DESIGN CIVIL ENGINEERING LANDSCAPE ARCHITECTURE PLANNING SURVEYING 12100 NE 195th St, Suite 300, Bothell, Washington 98011 425.865.7877</p>							
REVISIONS NO. DATE DESCRIPTION _____ _____ _____							



PRELIMINARY PLANT SCHEDULE

	STREET TREES 2.5" CAL. MIN; SPACING AS SHOWN PYRUS CALLERYANA 'CHANTICLEER' / CHANTICLEER PEAR	8
	DECIDUOUS SMALL MALUS X 'RED BARRON' / RED BARRON CRAB APPLE	16
	DECIDUOUS MEDIUM BETULA JACQUEMONTII / WHITEBARKED HIMALAYAN BIRCH CORNUS KOUSA 'EDDIE'S WHITE WONDER' / KOUSA DOGWOOD	1
	CONIFEROUS MEDIUM CHAMAECYPARIS OBTUSA 'GRACILIS' / SLENDER HINOKI CYPRESS MYRICA CALIFORNICA / PACIFIC WAX MYRTLE	2
	CONIFEROUS SMALL CALOCEDRUS DECURRENS / INCENSE CEDAR	9
	TYPE 2 VISUAL SCREEN	1,154 SF
	TYPE 3 VISUAL BUFFER	3,626 SF
	ROW LANDSCAPE	1,292 SF
	GENERAL LANDSCAPE	6,969 SF
	LAWN	3,603 SF



SCALE: 1" = 20'



HOLLY STREET TOWNHOMES

ISSAQUAH, WASHINGTON

DECEMBER 16, 2021



NOTE: EXHIBIT IS CONCEPTUAL IN NATURE AND IS SUBJECT TO CHANGE. NOT FOR CONSTRUCTION.

12/16/2021 3:19 PM \\A:\2021\121416 LANDSCAPE EXHIBITS\LANDSCAPE EXHIBIT RENDER.DWG

Appendix B
WWHM Reports

WWHM2012
PROJECT REPORT

General Model Information

Project Name: Public vault
Site Name: 21416 Issaquah Holly St
Site Address:
City: Issaquah
Report Date: 12/17/2021
Gage: Seatac
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.333
Version Date: 2021/08/18
Version: 4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Public

Bypass:	No
GroundWater:	No
Pervious Land Use C, Pasture, Flat	acre 0.039
Pervious Total	0.039
Impervious Land Use ROADS FLAT	acre 0.037
Impervious Total	0.037
Basin Total	0.076

Element Flows To:		
Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use C, Pasture, Flat	acre 0.032
Pervious Total	0.032
Impervious Land Use ROADS FLAT	acre 0.044
Impervious Total	0.044
Basin Total	0.076

Element Flows To:		
Surface	Interflow	Groundwater
Vault 1	Vault 1	

Routing Elements
Predeveloped Routing

Mitigated Routing

Vault 1

Width: 5 ft.
 Length: 5 ft.
 Depth: 5 ft.
 Discharge Structure
 Riser Height: 4 ft.
 Riser Diameter: 12 in.
 Orifice 1 Diameter: 0.5 in. Elevation:0 ft.
 Orifice 2 Diameter: 0.625 in. Elevation:3 ft.
 Element Flows To:
 Outlet 1 Outlet 2

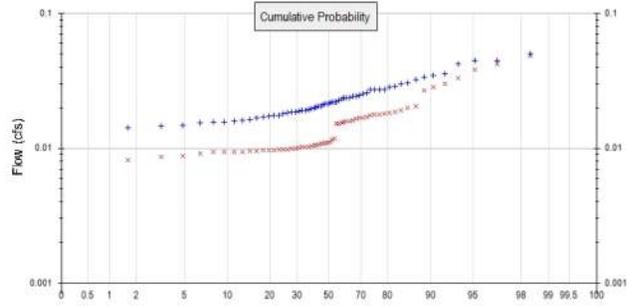
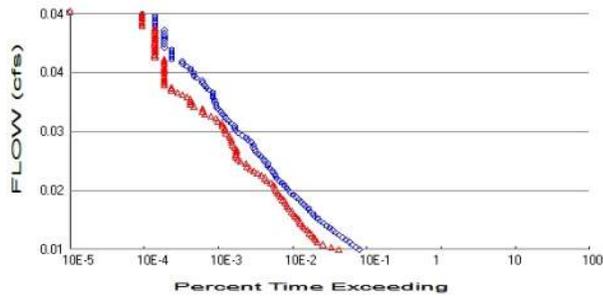
Vault Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.000574	0.000000	0.000	0.000
0.0556	0.000574	0.000032	0.001	0.000
0.1111	0.000574	0.000064	0.002	0.000
0.1667	0.000574	0.000096	0.002	0.000
0.2222	0.000574	0.000128	0.003	0.000
0.2778	0.000574	0.000159	0.003	0.000
0.3333	0.000574	0.000191	0.003	0.000
0.3889	0.000574	0.000223	0.004	0.000
0.4444	0.000574	0.000255	0.004	0.000
0.5000	0.000574	0.000287	0.004	0.000
0.5556	0.000574	0.000319	0.005	0.000
0.6111	0.000574	0.000351	0.005	0.000
0.6667	0.000574	0.000383	0.005	0.000
0.7222	0.000574	0.000414	0.005	0.000
0.7778	0.000574	0.000446	0.006	0.000
0.8333	0.000574	0.000478	0.006	0.000
0.8889	0.000574	0.000510	0.006	0.000
0.9444	0.000574	0.000542	0.006	0.000
1.0000	0.000574	0.000574	0.006	0.000
1.0556	0.000574	0.000606	0.007	0.000
1.1111	0.000574	0.000638	0.007	0.000
1.1667	0.000574	0.000670	0.007	0.000
1.2222	0.000574	0.000701	0.007	0.000
1.2778	0.000574	0.000733	0.007	0.000
1.3333	0.000574	0.000765	0.007	0.000
1.3889	0.000574	0.000797	0.008	0.000
1.4444	0.000574	0.000829	0.008	0.000
1.5000	0.000574	0.000861	0.008	0.000
1.5556	0.000574	0.000893	0.008	0.000
1.6111	0.000574	0.000925	0.008	0.000
1.6667	0.000574	0.000957	0.008	0.000
1.7222	0.000574	0.000988	0.008	0.000
1.7778	0.000574	0.001020	0.009	0.000
1.8333	0.000574	0.001052	0.009	0.000
1.8889	0.000574	0.001084	0.009	0.000
1.9444	0.000574	0.001116	0.009	0.000
2.0000	0.000574	0.001148	0.009	0.000
2.0556	0.000574	0.001180	0.009	0.000
2.1111	0.000574	0.001212	0.009	0.000

2.1667	0.000574	0.001243	0.010	0.000
2.2222	0.000574	0.001275	0.010	0.000
2.2778	0.000574	0.001307	0.010	0.000
2.3333	0.000574	0.001339	0.010	0.000
2.3889	0.000574	0.001371	0.010	0.000
2.4444	0.000574	0.001403	0.010	0.000
2.5000	0.000574	0.001435	0.010	0.000
2.5556	0.000574	0.001467	0.010	0.000
2.6111	0.000574	0.001499	0.011	0.000
2.6667	0.000574	0.001530	0.011	0.000
2.7222	0.000574	0.001562	0.011	0.000
2.7778	0.000574	0.001594	0.011	0.000
2.8333	0.000574	0.001626	0.011	0.000
2.8889	0.000574	0.001658	0.011	0.000
2.9444	0.000574	0.001690	0.011	0.000
3.0000	0.000574	0.001722	0.011	0.000
3.0556	0.000574	0.001754	0.014	0.000
3.1111	0.000574	0.001786	0.015	0.000
3.1667	0.000574	0.001817	0.016	0.000
3.2222	0.000574	0.001849	0.017	0.000
3.2778	0.000574	0.001881	0.017	0.000
3.3333	0.000574	0.001913	0.018	0.000
3.3889	0.000574	0.001945	0.019	0.000
3.4444	0.000574	0.001977	0.019	0.000
3.5000	0.000574	0.002009	0.020	0.000
3.5556	0.000574	0.002041	0.020	0.000
3.6111	0.000574	0.002072	0.021	0.000
3.6667	0.000574	0.002104	0.021	0.000
3.7222	0.000574	0.002136	0.022	0.000
3.7778	0.000574	0.002168	0.022	0.000
3.8333	0.000574	0.002200	0.023	0.000
3.8889	0.000574	0.002232	0.023	0.000
3.9444	0.000574	0.002264	0.023	0.000
4.0000	0.000574	0.002296	0.024	0.000
4.0556	0.000574	0.002328	0.163	0.000
4.1111	0.000574	0.002359	0.414	0.000
4.1667	0.000574	0.002391	0.728	0.000
4.2222	0.000574	0.002423	1.071	0.000
4.2778	0.000574	0.002455	1.409	0.000
4.3333	0.000574	0.002487	1.709	0.000
4.3889	0.000574	0.002519	1.947	0.000
4.4444	0.000574	0.002551	2.115	0.000
4.5000	0.000574	0.002583	2.230	0.000
4.5556	0.000574	0.002615	2.375	0.000
4.6111	0.000574	0.002646	2.490	0.000
4.6667	0.000574	0.002678	2.600	0.000
4.7222	0.000574	0.002710	2.705	0.000
4.7778	0.000574	0.002742	2.806	0.000
4.8333	0.000574	0.002774	2.904	0.000
4.8889	0.000574	0.002806	2.999	0.000
4.9444	0.000574	0.002838	3.090	0.000
5.0000	0.000574	0.002870	3.179	0.000
5.0556	0.000574	0.002901	3.266	0.000
5.1111	0.000000	0.000000	3.350	0.000

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.039
 Total Impervious Area: 0.037

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.032
 Total Impervious Area: 0.044

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.021734
5 year	0.028383
10 year	0.033114
25 year	0.039479
50 year	0.044512
100 year	0.0498

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.013022
5 year	0.019295
10 year	0.024424
25 year	0.032159
50 year	0.03893
100 year	0.046654

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.031	0.016
1950	0.027	0.017
1951	0.019	0.015
1952	0.014	0.010
1953	0.015	0.010
1954	0.018	0.010
1955	0.020	0.015
1956	0.019	0.011
1957	0.023	0.018
1958	0.018	0.010

1959	0.017	0.009
1960	0.021	0.016
1961	0.019	0.011
1962	0.016	0.009
1963	0.019	0.009
1964	0.017	0.011
1965	0.024	0.010
1966	0.015	0.010
1967	0.027	0.015
1968	0.030	0.012
1969	0.021	0.011
1970	0.020	0.010
1971	0.024	0.010
1972	0.027	0.019
1973	0.014	0.010
1974	0.023	0.010
1975	0.024	0.016
1976	0.018	0.010
1977	0.018	0.009
1978	0.022	0.018
1979	0.029	0.011
1980	0.033	0.017
1981	0.022	0.012
1982	0.032	0.030
1983	0.024	0.018
1984	0.016	0.009
1985	0.021	0.011
1986	0.019	0.018
1987	0.027	0.018
1988	0.016	0.009
1989	0.024	0.009
1990	0.050	0.049
1991	0.035	0.033
1992	0.016	0.011
1993	0.016	0.008
1994	0.015	0.008
1995	0.020	0.010
1996	0.025	0.019
1997	0.022	0.017
1998	0.020	0.010
1999	0.044	0.027
2000	0.021	0.016
2001	0.022	0.009
2002	0.029	0.021
2003	0.025	0.009
2004	0.042	0.043
2005	0.019	0.017
2006	0.017	0.010
2007	0.045	0.028
2008	0.035	0.038
2009	0.026	0.020

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0498	0.0487
2	0.0445	0.0425
3	0.0444	0.0383

4	0.0421	0.0331
5	0.0354	0.0301
6	0.0346	0.0282
7	0.0334	0.0267
8	0.0325	0.0206
9	0.0305	0.0199
10	0.0301	0.0192
11	0.0288	0.0187
12	0.0286	0.0182
13	0.0273	0.0181
14	0.0271	0.0178
15	0.0271	0.0178
16	0.0271	0.0176
17	0.0258	0.0171
18	0.0253	0.0169
19	0.0248	0.0167
20	0.0242	0.0165
21	0.0242	0.0160
22	0.0237	0.0160
23	0.0236	0.0159
24	0.0235	0.0157
25	0.0232	0.0154
26	0.0226	0.0152
27	0.0221	0.0151
28	0.0220	0.0117
29	0.0220	0.0116
30	0.0216	0.0111
31	0.0213	0.0111
32	0.0213	0.0110
33	0.0211	0.0108
34	0.0205	0.0108
35	0.0204	0.0107
36	0.0201	0.0105
37	0.0199	0.0105
38	0.0195	0.0103
39	0.0195	0.0102
40	0.0190	0.0102
41	0.0190	0.0102
42	0.0188	0.0101
43	0.0186	0.0100
44	0.0186	0.0099
45	0.0183	0.0098
46	0.0180	0.0098
47	0.0176	0.0098
48	0.0175	0.0097
49	0.0174	0.0096
50	0.0171	0.0096
51	0.0167	0.0095
52	0.0164	0.0095
53	0.0160	0.0094
54	0.0160	0.0094
55	0.0157	0.0094
56	0.0156	0.0093
57	0.0154	0.0091
58	0.0149	0.0088
59	0.0146	0.0086
60	0.0141	0.0082
61	0.0139	0.0079

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0109	1699	888	52	Pass
0.0112	1530	709	46	Pass
0.0115	1384	551	39	Pass
0.0119	1243	459	36	Pass
0.0122	1122	435	38	Pass
0.0126	1011	419	41	Pass
0.0129	914	390	42	Pass
0.0132	813	360	44	Pass
0.0136	742	336	45	Pass
0.0139	674	309	45	Pass
0.0143	607	293	48	Pass
0.0146	556	277	49	Pass
0.0149	504	265	52	Pass
0.0153	465	248	53	Pass
0.0156	429	233	54	Pass
0.0160	401	220	54	Pass
0.0163	372	207	55	Pass
0.0166	350	191	54	Pass
0.0170	323	183	56	Pass
0.0173	297	177	59	Pass
0.0177	276	169	61	Pass
0.0180	259	156	60	Pass
0.0183	236	146	61	Pass
0.0187	216	139	64	Pass
0.0190	199	133	66	Pass
0.0194	186	129	69	Pass
0.0197	175	124	70	Pass
0.0200	165	117	70	Pass
0.0204	153	109	71	Pass
0.0207	139	96	69	Pass
0.0211	131	91	69	Pass
0.0214	125	81	64	Pass
0.0217	119	72	60	Pass
0.0221	113	64	56	Pass
0.0224	107	57	53	Pass
0.0228	100	52	52	Pass
0.0231	99	50	50	Pass
0.0234	90	42	46	Pass
0.0238	86	39	45	Pass
0.0241	81	37	45	Pass
0.0245	74	37	50	Pass
0.0248	68	37	54	Pass
0.0251	65	37	56	Pass
0.0255	64	35	54	Pass
0.0258	63	33	52	Pass
0.0262	59	32	54	Pass
0.0265	53	32	60	Pass
0.0268	51	31	60	Pass
0.0272	45	30	66	Pass
0.0275	40	27	67	Pass
0.0279	36	26	72	Pass
0.0282	35	26	74	Pass
0.0285	35	24	68	Pass

0.0289	32	24	75	Pass
0.0292	30	21	70	Pass
0.0296	27	20	74	Pass
0.0299	26	17	65	Pass
0.0302	24	14	58	Pass
0.0306	23	13	56	Pass
0.0309	21	13	61	Pass
0.0313	20	10	50	Pass
0.0316	20	9	45	Pass
0.0319	19	9	47	Pass
0.0323	19	9	47	Pass
0.0326	18	8	44	Pass
0.0330	18	7	38	Pass
0.0333	18	6	33	Pass
0.0336	16	5	31	Pass
0.0340	15	5	33	Pass
0.0343	14	4	28	Pass
0.0347	13	4	30	Pass
0.0350	13	4	30	Pass
0.0353	11	4	36	Pass
0.0357	10	4	40	Pass
0.0360	10	4	40	Pass
0.0364	9	4	44	Pass
0.0367	9	4	44	Pass
0.0370	8	4	50	Pass
0.0374	7	4	57	Pass
0.0377	7	4	57	Pass
0.0381	5	4	80	Pass
0.0384	5	3	60	Pass
0.0387	5	3	60	Pass
0.0391	5	3	60	Pass
0.0394	5	3	60	Pass
0.0398	4	3	75	Pass
0.0401	4	3	75	Pass
0.0404	4	3	75	Pass
0.0408	4	3	75	Pass
0.0411	4	3	75	Pass
0.0415	4	3	75	Pass
0.0418	4	3	75	Pass
0.0421	4	3	75	Pass
0.0425	3	3	100	Pass
0.0428	3	2	66	Pass
0.0432	3	2	66	Pass
0.0435	3	2	66	Pass
0.0438	3	2	66	Pass
0.0442	3	2	66	Pass
0.0445	2	2	100	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Vault 1 POC	<input type="checkbox"/>	11.67			<input type="checkbox"/>	0.00			
Total Volume Infiltrated		11.67	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

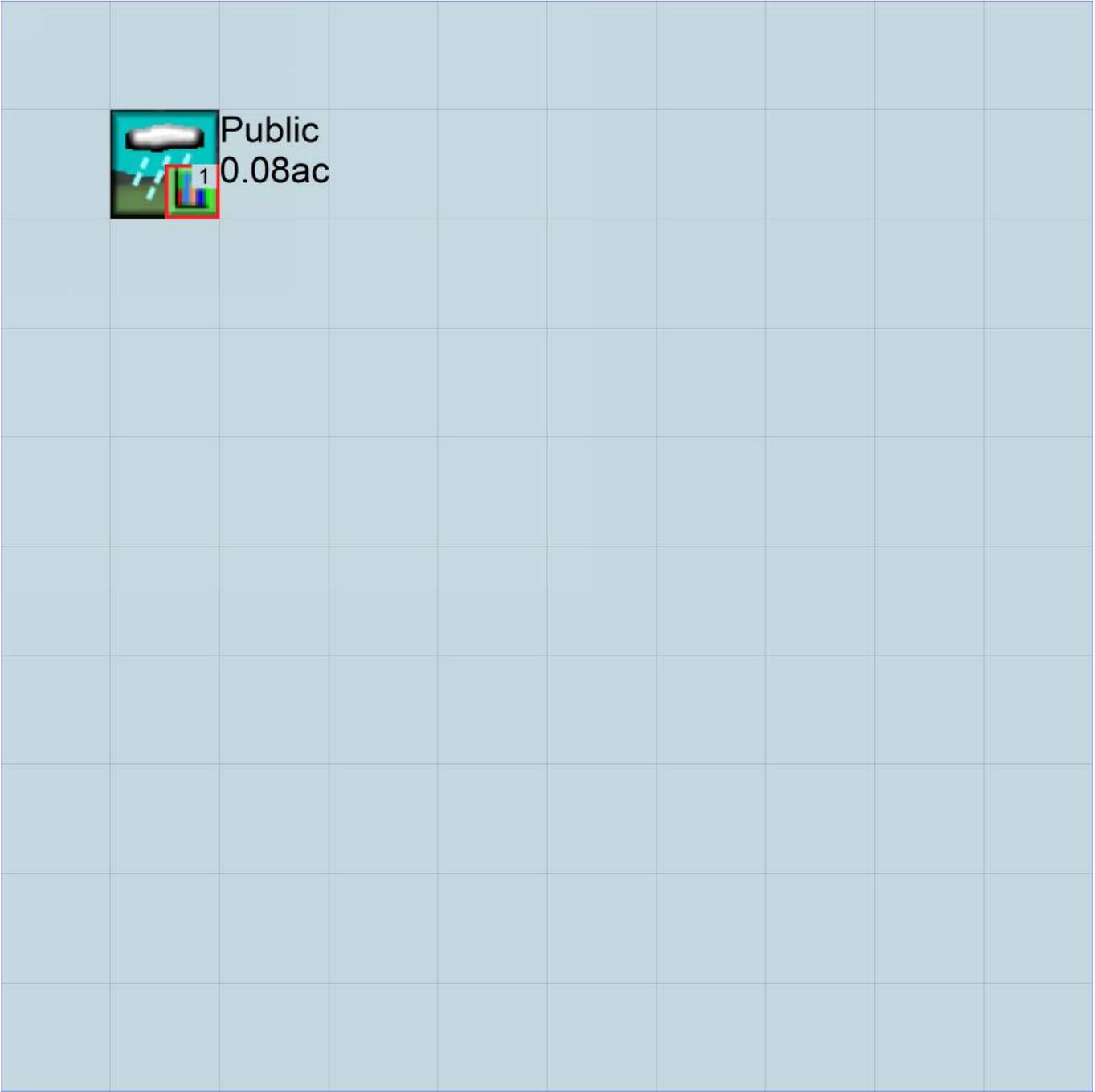
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN      1
UNIT SYSTEM      1
END GLOBAL
```

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      Public vault.wdm
MESSU    25      PrePublic vault.MES
          27      PrePublic vault.L61
          28      PrePublic vault.L62
          30      POCPublic vault1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:15
  PERLND        13
  IMPLND         1
  COPY          501
  DISPLY         1
```

END INGRP

END OPN SEQUENCE

DISPLY

```
DISPLY-INFO1
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Public                                MAX          1   2   30   9
END DISPLY-INFO1
```

END DISPLY

COPY

```
TIMESERIES
# - # NPT NMN ***
1   1   1
501 1   1
END TIMESERIES
```

END COPY

GENER

```
OPCODE
#   # OPCD ***
END OPCODE
PARM
#   #           K ***
END PARM
```

END GENER

PERLND

```
GEN-INFO
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #      User  t-series  Engl Metr ***
          in  out      ***
13      C, Pasture, Flat      1   1   1   1   27   0
END GEN-INFO
*** Section PWATER***
```

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC ***
13   0   0   1   0   0   0   0   0   0   0   0   0
END ACTIVITY
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC *****
13   0   0   4   0   0   0   0   0   0   0   0   0   1   9
END PRINT-INFO
```

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
13 0 0 0 0 0 0 0 0 0 0 0

END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
13 0 4.5 0.06 400 0.05 0.5 0.996

END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
13 0 0 2 2 0 0 0

END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***
13 0.15 0.4 0.3 6 0.5 0.4

END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS
13 0 0 0 0 2.5 1 0

END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engl Metr ***
in out ***
1 ROADS/FLAT 1 1 1 27 0

END GEN-INFO

*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0

END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 0 1 9

END PRINT-INFO

IWAT-PARM1

<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***
1 0 0 0 0 0

END IWAT-PARM1

IWAT-PARM2

<PLS > IWATER input info: Part 2 ***
- # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1

END IWAT-PARM2

IWAT-PARM3

<PLS > IWATER input info: Part 3 ***
- # ***PETMAX PETMIN
1 0 0

END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target	vols>	<-Grp>	<-Member->	***	
<Name>	#	<Name>	#	tem strg<-factor->	strg	<Name>	#	#	***
WDM	2	PREC	ENGL	1.333		PERLND	1 999	EXTNL	PREC
WDM	2	PREC	ENGL	1.333		IMPLND	1 999	EXTNL	PREC
WDM	1	EVAP	ENGL	0.76		PERLND	1 999	EXTNL	PETINP
WDM	1	EVAP	ENGL	0.76		IMPLND	1 999	EXTNL	PETINP

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	#<-factor->	strg	<Name>	#	<Name>	tem	strg	strg***
COPY	501	OUTPUT	MEAN	1 1	48.4	WDM	501	FLOW	ENGL		REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***		
<Name>	#	<Name>	#	#<-factor->	<Name>	<Name>	#	#	***
MASS-LINK			12						
PERLND	PWATER	SURO		0.083333	COPY	INPUT	MEAN		
END MASS-LINK			12						
MASS-LINK			13						
PERLND	PWATER	IFWO		0.083333	COPY	INPUT	MEAN		
END MASS-LINK			13						
MASS-LINK			15						
IMPLND	IWATER	SURO		0.083333	COPY	INPUT	MEAN		
END MASS-LINK			15						

END MASS-LINK

END RUN

Mitigated UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN         1
UNIT SYSTEM 1
```

END GLOBAL

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      Public vault.wdm
MESSU    25      MitPublic vault.MES
          27      MitPublic vault.L61
          28      MitPublic vault.L62
          30      POCPublic vault1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:15
  PERLND        13
  IMPLND         1
  RCHRES         1
  COPY           1
  COPY          501
  DISPLY         1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Vault 1      MAX      1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCODE ***
```

END OPCODE

PARAM

```
#      #      K ***
```

END PARAM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #      User  t-series  Engl Metr ***
          in  out      ***
13      C, Pasture, Flat      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL  PEST  NITR  PHOS  TRAC ***
13      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL  PEST  NITR  PHOS  TRAC *****
```

13 0 0 4 0 0 0 0 0 0 0 0 0 0 1 9
END PRINT-INFO

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
13 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
13 0 4.5 0.06 400 0.05 0.5 0.996
END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
13 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***
13 0.15 0.4 0.3 6 0.5 0.4
END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS
13 0 0 0 0 2.5 1 0
END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engl Metr ***
in out ***
1 ROADS/FLAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
1 0 0 1 0 0 0
END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
1 0 0 4 0 0 0 1 9
END PRINT-INFO

IWAT-PARM1

<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***
1 0 0 0 0 0
END IWAT-PARM1

IWAT-PARM2

<PLS > IWATER input info: Part 2 ***
- # *** LSUR SLSUR NSUR RETSC
1 400 0.01 0.1 0.1
END IWAT-PARM2

IWAT-PARM3

<PLS > IWATER input info: Part 3 ***


```

1          1          0.01          0.0          0.0          0.5          0.0
END HYDR-PARM2
HYDR-INIT
  RCHRES Initial conditions for each HYDR section ***
  # - # *** VOL Initial value of COLIND Initial value of OUTDGT
  *** ac-ft for each possible exit for each possible exit
<-----><-----> <-----><-----><-----> *** <-----><-----><-----><----->
1          0          4.0 0.0 0.0 0.0 0.0          0.0 0.0 0.0 0.0 0.0
END HYDR-INIT
END RCHRES

```

```

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES

```

```

FTABLE      1
  92      4
  Depth      Area      Volume      Outflowl      Velocity      Travel Time***
  (ft)      (acres) (acre-ft) (cfs)      (ft/sec)      (Minutes)***
0.000000  0.000574  0.000000  0.000000  0.000000
0.055556  0.000574  0.000032  0.0001599
0.111111  0.000574  0.000064  0.002261
0.166667  0.000574  0.000096  0.002770
0.222222  0.000574  0.000128  0.003198
0.277778  0.000574  0.000159  0.003576
0.333333  0.000574  0.000191  0.003917
0.388889  0.000574  0.000223  0.004231
0.444444  0.000574  0.000255  0.004523
0.500000  0.000574  0.000287  0.004797
0.555556  0.000574  0.000319  0.005057
0.611111  0.000574  0.000351  0.005303
0.666667  0.000574  0.000383  0.005539
0.722222  0.000574  0.000414  0.005765
0.777778  0.000574  0.000446  0.005983
0.833333  0.000574  0.000478  0.006193
0.888889  0.000574  0.000510  0.006396
0.944444  0.000574  0.000542  0.006593
1.000000  0.000574  0.000574  0.006784
1.055556  0.000574  0.000606  0.006970
1.111111  0.000574  0.000638  0.007151
1.166667  0.000574  0.000670  0.007328
1.222222  0.000574  0.000701  0.007500
1.277778  0.000574  0.000733  0.007669
1.333333  0.000574  0.000765  0.007834
1.388889  0.000574  0.000797  0.007995
1.444444  0.000574  0.000829  0.008154
1.500000  0.000574  0.000861  0.008309
1.555556  0.000574  0.000893  0.008461
1.611111  0.000574  0.000925  0.008611
1.666667  0.000574  0.000957  0.008758
1.722222  0.000574  0.000988  0.008903
1.777778  0.000574  0.001020  0.009046
1.833333  0.000574  0.001052  0.009186
1.888889  0.000574  0.001084  0.009324
1.944444  0.000574  0.001116  0.009460
2.000000  0.000574  0.001148  0.009594
2.055556  0.000574  0.001180  0.009727
2.111111  0.000574  0.001212  0.009857
2.166667  0.000574  0.001243  0.009986
2.222222  0.000574  0.001275  0.010113
2.277778  0.000574  0.001307  0.010239
2.333333  0.000574  0.001339  0.010363
2.388889  0.000574  0.001371  0.010486
2.444444  0.000574  0.001403  0.010607
2.500000  0.000574  0.001435  0.010727
2.555556  0.000574  0.001467  0.010845
2.611111  0.000574  0.001499  0.010963
2.666667  0.000574  0.001530  0.011079
2.722222  0.000574  0.001562  0.011193
2.777778  0.000574  0.001594  0.011307
2.833333  0.000574  0.001626  0.011420

```

2.888889	0.000574	0.001658	0.011531
2.944444	0.000574	0.001690	0.011641
3.000000	0.000574	0.001722	0.011751
3.055556	0.000574	0.001754	0.014357
3.111111	0.000574	0.001786	0.015500
3.166667	0.000574	0.001817	0.016400
3.222222	0.000574	0.001849	0.017175
3.277778	0.000574	0.001881	0.017869
3.333333	0.000574	0.001913	0.018506
3.388889	0.000574	0.001945	0.019099
3.444444	0.000574	0.001977	0.019658
3.500000	0.000574	0.002009	0.020188
3.555556	0.000574	0.002041	0.020693
3.611111	0.000574	0.002072	0.021179
3.666667	0.000574	0.002104	0.021646
3.722222	0.000574	0.002136	0.022097
3.777778	0.000574	0.002168	0.022535
3.833333	0.000574	0.002200	0.022959
3.888889	0.000574	0.002232	0.023373
3.944444	0.000574	0.002264	0.023776
4.000000	0.000574	0.002296	0.024169
4.055556	0.000574	0.002328	0.163282
4.111111	0.000574	0.002359	0.414768
4.166667	0.000574	0.002391	0.728730
4.222222	0.000574	0.002423	1.071689
4.277778	0.000574	0.002455	1.409566
4.333333	0.000574	0.002487	1.709831
4.388889	0.000574	0.002519	1.947810
4.444444	0.000574	0.002551	2.115276
4.500000	0.000574	0.002583	2.230709
4.555556	0.000574	0.002615	2.375297
4.611111	0.000574	0.002646	2.490202
4.666667	0.000574	0.002678	2.600003
4.722222	0.000574	0.002710	2.705325
4.777778	0.000574	0.002742	2.806675
4.833333	0.000574	0.002774	2.904474
4.888889	0.000574	0.002806	2.999069
4.944444	0.000574	0.002838	3.090757
5.000000	0.000574	0.002870	3.179791
5.055556	0.000574	0.002901	3.266389

END FTABLE 1

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target	vols	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem strg	<-factor-->	strg	<Name>	#	#
WDM	2	PREC	ENGL	1.333			PERLND	1	999
WDM	2	PREC	ENGL	1.333			IMPLND	1	999
WDM	1	EVAP	ENGL	0.76			PERLND	1	999
WDM	1	EVAP	ENGL	0.76			IMPLND	1	999

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name>	#	#	<-factor-->	strg	<Name>	#	<Name>	tem strg
RCHRES	1	HYDR	RO	1	1		WDM	1004	FLOW	ENGL
RCHRES	1	HYDR	STAGE	1	1		WDM	1005	STAG	ENGL
COPY	1	OUTPUT	MEAN	1	1	48.4	WDM	701	FLOW	ENGL
COPY	501	OUTPUT	MEAN	1	1	48.4	WDM	801	FLOW	ENGL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>		<Name>	#	#	<-factor-->	<Name>	#
MASS-LINK			2				
PERLND	PWATER	SURO		0.083333		RCHRES	INFLOW
END MASS-LINK			2			IVOL	

MASS-LINK 3

PERLND	PWATER	IFWO	0.083333	RCHRES	INFLOW	IVOL
END MASS-LINK		3				
MASS-LINK		5				
IMPLND	IWATER	SURO	0.083333	RCHRES	INFLOW	IVOL
END MASS-LINK		5				
MASS-LINK		12				
PERLND	PWATER	SURO	0.083333	COPY	INPUT	MEAN
END MASS-LINK		12				
MASS-LINK		13				
PERLND	PWATER	IFWO	0.083333	COPY	INPUT	MEAN
END MASS-LINK		13				
MASS-LINK		15				
IMPLND	IWATER	SURO	0.083333	COPY	INPUT	MEAN
END MASS-LINK		15				
MASS-LINK		16				
RCHRES	ROFLOW			COPY	INPUT	MEAN
END MASS-LINK		16				
END MASS-LINK						
END RUN						

Predeveloped HSPF Message File

Mitigated HSPF Message File

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WWHM2012
PROJECT REPORT

General Model Information

Project Name: Private vault
Site Name: 21416 Issaquah Holly St
Site Address:
City: Issaquah
Report Date: 12/17/2021
Gage: Seatac
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.333
Version Date: 2021/08/18
Version: 4.2.18

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Public

Bypass: No

GroundWater: No

Pervious Land Use acre
C, Pasture, Flat 0.916

Pervious Total 0.916

Impervious Land Use acre
ROOF TOPS FLAT 0.175
DRIVEWAYS FLAT 0.219
SIDEWALKS FLAT 0.012

Impervious Total 0.406

Basin Total 1.322

Element Flows To:
Surface Interflow Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Pasture, Flat	0.354
Pervious Total	0.354
Impervious Land Use	acre
ROADS FLAT	0.275
ROOF TOPS FLAT	0.566
SIDEWALKS FLAT	0.127
Impervious Total	0.968
Basin Total	1.322

Element Flows To:		
Surface	Interflow	Groundwater
Vault 1	Vault 1	

Routing Elements
Predeveloped Routing

Mitigated Routing

Vault 1

Width: 16 ft.
 Length: 124 ft.
 Depth: 6 ft.
 Discharge Structure
 Riser Height: 5 ft.
 Riser Diameter: 12 in.
 Orifice 1 Diameter: 1.625 in. Elevation:0 ft.
 Orifice 2 Diameter: 2 in. Elevation:3.5 ft.
 Orifice 3 Diameter: 2 in. Elevation:4 ft.
 Element Flows To:
 Outlet 1 Outlet 2

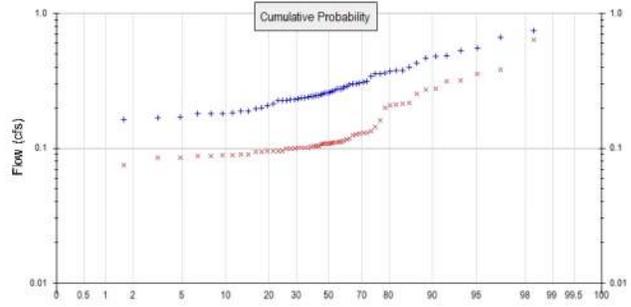
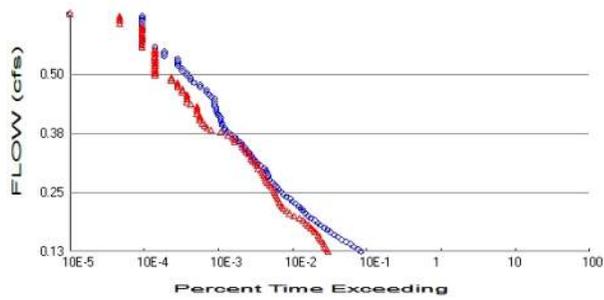
Vault Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.045	0.000	0.000	0.000
0.0667	0.045	0.003	0.018	0.000
0.1333	0.045	0.006	0.026	0.000
0.2000	0.045	0.009	0.032	0.000
0.2667	0.045	0.012	0.037	0.000
0.3333	0.045	0.015	0.041	0.000
0.4000	0.045	0.018	0.045	0.000
0.4667	0.045	0.021	0.049	0.000
0.5333	0.045	0.024	0.052	0.000
0.6000	0.045	0.027	0.055	0.000
0.6667	0.045	0.030	0.058	0.000
0.7333	0.045	0.033	0.061	0.000
0.8000	0.045	0.036	0.064	0.000
0.8667	0.045	0.039	0.066	0.000
0.9333	0.045	0.042	0.069	0.000
1.0000	0.045	0.045	0.071	0.000
1.0667	0.045	0.048	0.074	0.000
1.1333	0.045	0.051	0.076	0.000
1.2000	0.045	0.054	0.078	0.000
1.2667	0.045	0.057	0.080	0.000
1.3333	0.045	0.060	0.082	0.000
1.4000	0.045	0.063	0.084	0.000
1.4667	0.045	0.066	0.086	0.000
1.5333	0.045	0.069	0.088	0.000
1.6000	0.045	0.072	0.090	0.000
1.6667	0.045	0.075	0.092	0.000
1.7333	0.045	0.078	0.094	0.000
1.8000	0.045	0.082	0.096	0.000
1.8667	0.045	0.085	0.097	0.000
1.9333	0.045	0.088	0.099	0.000
2.0000	0.045	0.091	0.101	0.000
2.0667	0.045	0.094	0.103	0.000
2.1333	0.045	0.097	0.104	0.000
2.2000	0.045	0.100	0.106	0.000
2.2667	0.045	0.103	0.107	0.000
2.3333	0.045	0.106	0.109	0.000
2.4000	0.045	0.109	0.111	0.000
2.4667	0.045	0.112	0.112	0.000

2.5333	0.045	0.115	0.114	0.000
2.6000	0.045	0.118	0.115	0.000
2.6667	0.045	0.121	0.117	0.000
2.7333	0.045	0.124	0.118	0.000
2.8000	0.045	0.127	0.119	0.000
2.8667	0.045	0.130	0.121	0.000
2.9333	0.045	0.133	0.122	0.000
3.0000	0.045	0.136	0.124	0.000
3.0667	0.045	0.139	0.125	0.000
3.1333	0.045	0.142	0.126	0.000
3.2000	0.045	0.145	0.128	0.000
3.2667	0.045	0.148	0.129	0.000
3.3333	0.045	0.151	0.130	0.000
3.4000	0.045	0.154	0.132	0.000
3.4667	0.045	0.157	0.133	0.000
3.5333	0.045	0.160	0.154	0.000
3.6000	0.045	0.164	0.170	0.000
3.6667	0.045	0.167	0.181	0.000
3.7333	0.045	0.170	0.190	0.000
3.8000	0.045	0.173	0.199	0.000
3.8667	0.045	0.176	0.206	0.000
3.9333	0.045	0.179	0.213	0.000
4.0000	0.045	0.182	0.220	0.000
4.0667	0.045	0.185	0.254	0.000
4.1333	0.045	0.188	0.271	0.000
4.2000	0.045	0.191	0.286	0.000
4.2667	0.045	0.194	0.299	0.000
4.3333	0.045	0.197	0.310	0.000
4.4000	0.045	0.200	0.321	0.000
4.4667	0.045	0.203	0.332	0.000
4.5333	0.045	0.206	0.342	0.000
4.6000	0.045	0.209	0.351	0.000
4.6667	0.045	0.212	0.360	0.000
4.7333	0.045	0.215	0.369	0.000
4.8000	0.045	0.218	0.377	0.000
4.8667	0.045	0.221	0.386	0.000
4.9333	0.045	0.224	0.394	0.000
5.0000	0.045	0.227	0.401	0.000
5.0667	0.045	0.230	0.591	0.000
5.1333	0.045	0.233	0.926	0.000
5.2000	0.045	0.236	1.331	0.000
5.2667	0.045	0.239	1.749	0.000
5.3333	0.045	0.242	2.121	0.000
5.4000	0.045	0.246	2.404	0.000
5.4667	0.045	0.249	2.589	0.000
5.5333	0.045	0.252	2.757	0.000
5.6000	0.045	0.255	2.903	0.000
5.6667	0.045	0.258	3.042	0.000
5.7333	0.045	0.261	3.173	0.000
5.8000	0.045	0.264	3.299	0.000
5.8667	0.045	0.267	3.421	0.000
5.9333	0.045	0.270	3.537	0.000
6.0000	0.045	0.273	3.650	0.000
6.0667	0.045	0.276	3.759	0.000
6.1333	0.000	0.000	3.865	0.000

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.916
 Total Impervious Area: 0.406

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.354
 Total Impervious Area: 0.968

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.26813
5 year	0.365623
10 year	0.437348
25 year	0.536476
50 year	0.616722
100 year	0.70265

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.121748
5 year	0.184396
10 year	0.236491
25 year	0.316182
50 year	0.386842
100 year	0.468286

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.399	0.108
1950	0.373	0.111
1951	0.242	0.209
1952	0.169	0.095
1953	0.170	0.099
1954	0.215	0.090
1955	0.240	0.134
1956	0.225	0.117
1957	0.283	0.118
1958	0.208	0.110

1959	0.188	0.104
1960	0.276	0.210
1961	0.230	0.107
1962	0.180	0.084
1963	0.235	0.101
1964	0.200	0.094
1965	0.302	0.111
1966	0.182	0.090
1967	0.376	0.126
1968	0.356	0.094
1969	0.268	0.109
1970	0.251	0.103
1971	0.296	0.103
1972	0.361	0.130
1973	0.163	0.096
1974	0.289	0.085
1975	0.306	0.129
1976	0.227	0.101
1977	0.228	0.088
1978	0.255	0.109
1979	0.314	0.087
1980	0.466	0.130
1981	0.266	0.101
1982	0.428	0.313
1983	0.276	0.111
1984	0.189	0.095
1985	0.247	0.108
1986	0.256	0.213
1987	0.299	0.255
1988	0.180	0.095
1989	0.258	0.074
1990	0.745	0.317
1991	0.484	0.271
1992	0.197	0.100
1993	0.181	0.101
1994	0.160	0.070
1995	0.234	0.110
1996	0.356	0.198
1997	0.278	0.277
1998	0.235	0.099
1999	0.553	0.144
2000	0.260	0.104
2001	0.242	0.088
2002	0.376	0.218
2003	0.340	0.089
2004	0.529	0.636
2005	0.246	0.125
2006	0.227	0.114
2007	0.664	0.357
2008	0.477	0.383
2009	0.307	0.160

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.7447	0.6358
2	0.6640	0.3827
3	0.5533	0.3574

4	0.5286	0.3169
5	0.4842	0.3128
6	0.4775	0.2770
7	0.4656	0.2715
8	0.4282	0.2551
9	0.3989	0.2183
10	0.3761	0.2130
11	0.3761	0.2101
12	0.3728	0.2085
13	0.3612	0.1981
14	0.3564	0.1599
15	0.3559	0.1444
16	0.3396	0.1343
17	0.3143	0.1301
18	0.3074	0.1300
19	0.3060	0.1289
20	0.3017	0.1260
21	0.2986	0.1248
22	0.2959	0.1179
23	0.2892	0.1170
24	0.2834	0.1140
25	0.2778	0.1113
26	0.2763	0.1112
27	0.2763	0.1111
28	0.2678	0.1101
29	0.2659	0.1100
30	0.2604	0.1089
31	0.2580	0.1088
32	0.2560	0.1084
33	0.2551	0.1076
34	0.2507	0.1067
35	0.2475	0.1043
36	0.2456	0.1035
37	0.2424	0.1034
38	0.2417	0.1027
39	0.2396	0.1015
40	0.2350	0.1013
41	0.2350	0.1012
42	0.2340	0.1006
43	0.2296	0.0998
44	0.2282	0.0990
45	0.2270	0.0990
46	0.2268	0.0958
47	0.2251	0.0951
48	0.2152	0.0947
49	0.2075	0.0946
50	0.1996	0.0940
51	0.1971	0.0938
52	0.1886	0.0901
53	0.1882	0.0898
54	0.1822	0.0887
55	0.1808	0.0883
56	0.1801	0.0878
57	0.1799	0.0869
58	0.1703	0.0852
59	0.1691	0.0844
60	0.1625	0.0744
61	0.1605	0.0698

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.1341	1783	642	36	Pass
0.1389	1614	614	38	Pass
0.1438	1437	590	41	Pass
0.1487	1278	563	44	Pass
0.1536	1108	538	48	Pass
0.1584	980	510	52	Pass
0.1633	885	491	55	Pass
0.1682	781	466	59	Pass
0.1731	688	433	62	Pass
0.1779	634	409	64	Pass
0.1828	568	378	66	Pass
0.1877	507	349	68	Pass
0.1926	467	319	68	Pass
0.1974	421	292	69	Pass
0.2023	378	264	69	Pass
0.2072	348	224	64	Pass
0.2121	317	194	61	Pass
0.2169	294	176	59	Pass
0.2218	274	160	58	Pass
0.2267	256	153	59	Pass
0.2316	236	144	61	Pass
0.2364	215	140	65	Pass
0.2413	197	135	68	Pass
0.2462	175	131	74	Pass
0.2511	160	126	78	Pass
0.2559	151	123	81	Pass
0.2608	140	119	85	Pass
0.2657	131	110	83	Pass
0.2706	123	104	84	Pass
0.2754	115	97	84	Pass
0.2803	107	94	87	Pass
0.2852	100	91	91	Pass
0.2901	99	88	88	Pass
0.2950	97	84	86	Pass
0.2998	93	81	87	Pass
0.3047	90	74	82	Pass
0.3096	79	72	91	Pass
0.3145	72	68	94	Pass
0.3193	67	62	92	Pass
0.3242	63	60	95	Pass
0.3291	60	59	98	Pass
0.3340	56	54	96	Pass
0.3388	54	51	94	Pass
0.3437	49	49	100	Pass
0.3486	48	45	93	Pass
0.3535	44	44	100	Pass
0.3583	41	35	85	Pass
0.3632	38	35	92	Pass
0.3681	36	33	91	Pass
0.3730	33	29	87	Pass
0.3778	29	23	79	Pass
0.3827	26	17	65	Pass
0.3876	26	15	57	Pass

0.3925	24	14	58	Pass
0.3973	24	13	54	Pass
0.4022	23	12	52	Pass
0.4071	23	12	52	Pass
0.4120	22	12	54	Pass
0.4168	21	11	52	Pass
0.4217	20	11	55	Pass
0.4266	20	11	55	Pass
0.4315	19	11	57	Pass
0.4363	19	9	47	Pass
0.4412	19	8	42	Pass
0.4461	19	8	42	Pass
0.4510	17	8	47	Pass
0.4558	16	8	50	Pass
0.4607	15	7	46	Pass
0.4656	15	7	46	Pass
0.4705	12	6	50	Pass
0.4753	12	6	50	Pass
0.4802	10	6	60	Pass
0.4851	9	5	55	Pass
0.4900	9	5	55	Pass
0.4948	8	3	37	Pass
0.4997	8	3	37	Pass
0.5046	7	3	42	Pass
0.5095	7	3	42	Pass
0.5143	6	3	50	Pass
0.5192	6	3	50	Pass
0.5241	6	3	50	Pass
0.5290	6	3	50	Pass
0.5338	4	3	75	Pass
0.5387	4	3	75	Pass
0.5436	4	3	75	Pass
0.5485	3	3	100	Pass
0.5533	3	2	66	Pass
0.5582	2	2	100	Pass
0.5631	2	2	100	Pass
0.5680	2	2	100	Pass
0.5728	2	2	100	Pass
0.5777	2	2	100	Pass
0.5826	2	2	100	Pass
0.5875	2	2	100	Pass
0.5923	2	2	100	Pass
0.5972	2	2	100	Pass
0.6021	2	1	50	Pass
0.6070	2	1	50	Pass
0.6118	2	1	50	Pass
0.6167	2	1	50	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Vault 1 POC	<input type="checkbox"/>	225.42			<input type="checkbox"/>	0.00			
Total Volume Infiltrated		225.42	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

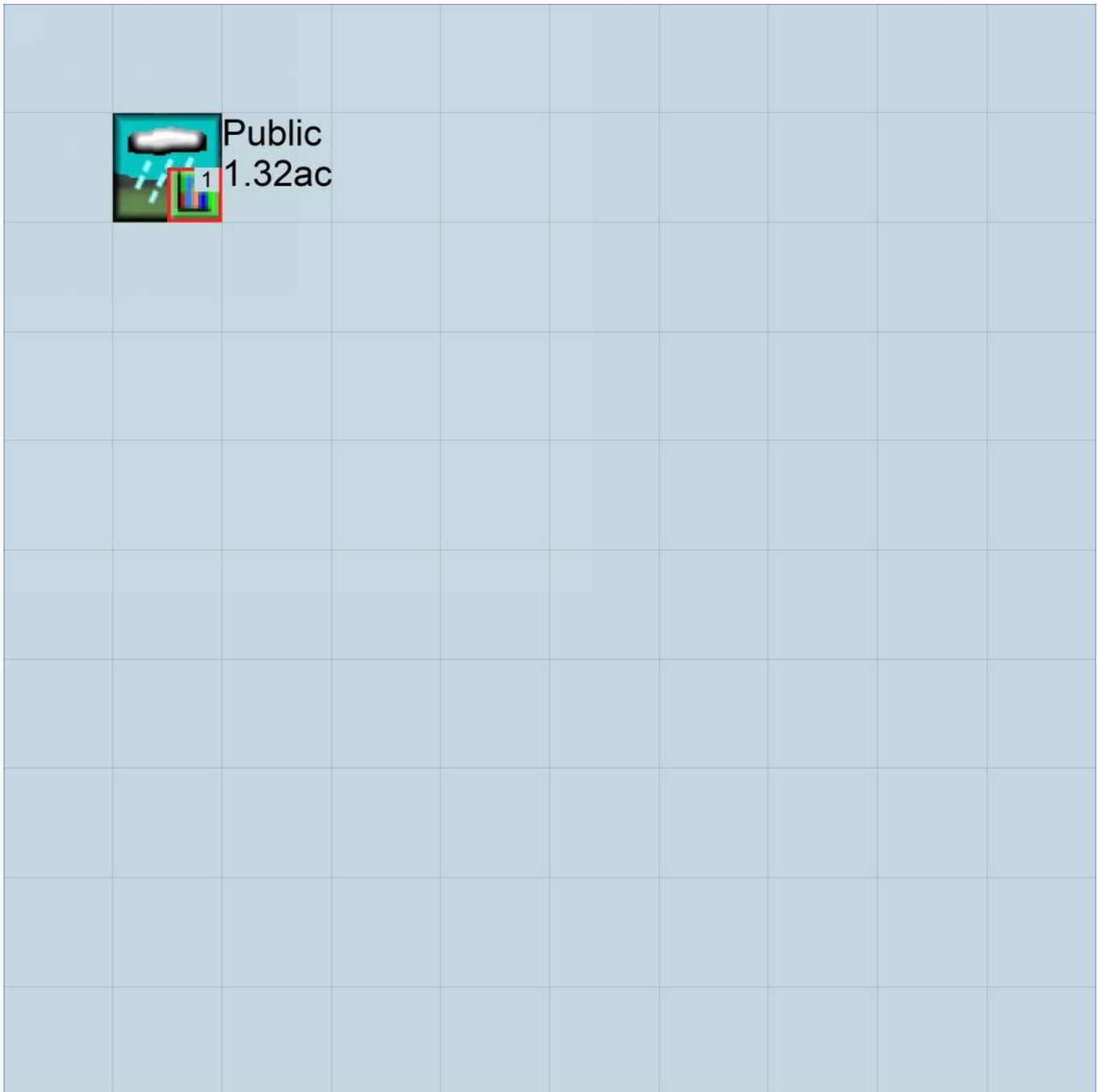
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WVHM4 model simulation
START      1948 10 01      END      2009 09 30
RUN INTERP OUTPUT LEVEL   3      0
RESUME     0 RUN         1
UNIT SYSTEM 1
```

END GLOBAL

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      Private vault.wdm
MESSU    25      PrePrivate vault.MES
          27      PrePrivate vault.L61
          28      PrePrivate vault.L62
          30      POCPrivate vault1.dat
```

END FILES

OPN SEQUENCE

```
INGRP          INDELT 00:15
  PERLND        13
  IMPLND         4
  IMPLND         5
  IMPLND         8
  COPY          501
  DISPLY         1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INF01

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Public                                MAX                1      2      30      9
```

END DISPLY-INF01

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCODE ***
```

END OPCODE

PARAM

```
#      #          K ***
```

END PARAM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #                               User  t-series  Engl Metr ***
                               in  out      ***
13      C, Pasture, Flat          1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL  PEST  NITR  PHOS  TRAC ***
13      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL  PEST  NITR  PHOS  TRAC *****
```

13 0 0 4 0 0 0 0 0 0 0 0 0 0 1 9
END PRINT-INFO

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
13 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
13 0 4.5 0.06 400 0.05 0.5 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
13 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***
13 0.15 0.4 0.3 6 0.5 0.4
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS
13 0 0 0 0 2.5 1 0
END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engl Metr ***
in out ***
4 ROOF TOPS/FLAT 1 1 1 27 0
5 DRIVEWAYS/FLAT 1 1 1 27 0
8 SIDEWALKS/FLAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
4 0 0 1 0 0 0
5 0 0 1 0 0 0
8 0 0 1 0 0 0
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
4 0 0 4 0 0 0 1 9
5 0 0 4 0 0 0 1 9
8 0 0 4 0 0 0 1 9
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***
4 0 0 0 0 0
5 0 0 0 0 0
8 0 0 0 0 0
END IWAT-PARM1

```

IWAT-PARM2
<PLS >          IWATER input info: Part 2          ***
# - # ***  LSUR      SLSUR      NSUR      RETSC
4         400      0.01      0.1      0.1
5         400      0.01      0.1      0.1
8         400      0.01      0.1      0.1
END IWAT-PARM2

```

```

IWAT-PARM3
<PLS >          IWATER input info: Part 3          ***
# - # ***PETMAX    PETMIN
4         0         0
5         0         0
8         0         0
END IWAT-PARM3

```

```

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # ***  RETS      SURS
4         0         0
5         0         0
8         0         0
END IWAT-STATE1

```

END IMPLND

```

SCHEMATIC
<-Source->          <--Area-->          <-Target->  MBLK    ***
<Name> #           <-factor->          <Name> #    Tbl#    ***
Public***
PERLND 13          0.916          COPY 501    12
PERLND 13          0.916          COPY 501    13
IMPLND 4           0.175          COPY 501    15
IMPLND 5           0.219          COPY 501    15
IMPLND 8           0.012          COPY 501    15

```

*****Routing*****
END SCHEMATIC

```

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #     <Name> # #<-factor->strg <Name> # #     <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4          DISPLAY 1     INPUT TIMSER 1

```

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #     <Name> # #<-factor->strg <Name> # #     <Name> # # ***
END NETWORK

```

```

RCHRES
GEN-INFO
RCHRES          Name          Nexits  Unit Systems  Printer          ***
# - #<-----><----> User T-series Engl Metr LKFG          ***
                               in out
END GEN-INFO
*** Section RCHRES***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFQ PKFG PHFG ***
END ACTIVITY

```

```

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL  PYR
# - # HYDR ADCA CONS HEAT SED  GQL  OXRX NUTR PLNK PHCB PIVL  PYR *****
END PRINT-INFO

```

```

HYDR-PARM1
RCHRES  Flags for each HYDR Section          ***

```

```

# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each
      FG FG FG FG possible exit *** possible exit possible exit
      * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
END HYDR-PARM1

HYDR-PARM2
# - # FTABNO LEN DELTH STCOR KS DB50 ***
<-----><-----><-----><-----><-----><-----><-----><-----> ***
END HYDR-PARM2
HYDR-INIT
RCHRES Initial conditions for each HYDR section ***
# - # *** VOL Initial value of COLIND Initial value of OUTDGT
      *** ac-ft for each possible exit for each possible exit
<-----><-----><-----><-----><-----><-----><-----><-----><----->
END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # tem strg<-factor->strg <Name> # # <Name> # # ***
WDM 2 PREC ENGL 1.333 PERLND 1 999 EXTNL PREC
WDM 2 PREC ENGL 1.333 IMPLND 1 999 EXTNL PREC
WDM 1 EVAP ENGL 0.76 PERLND 1 999 EXTNL PETINP
WDM 1 EVAP ENGL 0.76 IMPLND 1 999 EXTNL PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<-factor->strg <Name> # <Name> tem strg strg***
COPY 501 OUTPUT MEAN 1 1 48.4 WDM 501 FLOW ENGL REPL
END EXT TARGETS

MASS-LINK
<Volume> <-Grp> <-Member-><--Mult--> <Target> <-Grp> <-Member->***
<Name> <Name> # #<-factor-> <Name> <Name> # #***
MASS-LINK 12
PERLND PWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 12

MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
END MASS-LINK 13

MASS-LINK 15
IMPLND IWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 15

END MASS-LINK

END RUN

```

Mitigated UCI File

RUN

GLOBAL

WVHM4 model simulation
START 1948 10 01 END 2009 09 30
RUN INTERP OUTPUT LEVEL 3 0
RESUME 0 RUN 1 UNIT SYSTEM 1
END GLOBAL

FILES

<File>	<Un#>	<-----File Name----->	***
<-ID->			***
WDM	26	Private vault.wdm	
MESSU	25	MitPrivate vault.MES	
	27	MitPrivate vault.L61	
	28	MitPrivate vault.L62	
	30	POCPrivate vault1.dat	

END FILES

OPN SEQUENCE

INGRP INDELT 00:15
PERLND 13
IMPLND 1
IMPLND 4
IMPLND 8
RCHRES 1
COPY 1
COPY 501
DISPLY 1

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

#	-	#	<-----Title----->	***	TRAN	PIVL	DIG1	FIL1	PYR	DIG2	FIL2	YRND
1			Vault 1		MAX				1	2	30	9

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

#	-	#	NPT	NMN	***
1			1	1	
501			1	1	

END TIMESERIES

END COPY

GENER

OPCODE

#	#	OPCD	***

END OPCODE

PARM

#	#	K	***

END PARM

END GENER

PERLND

GEN-INFO

<PLS >	<-----Name----->	NBLKS	Unit-systems		Printer		***
#	#		User	t-series	Engl	Metr	***
			in	out			***
13	C, Pasture, Flat	1	1	1	1	27	0

END GEN-INFO

*** Section PWATER***

ACTIVITY

<PLS >	***** Active Sections *****														
#	-	#	ATMP	SNOW	PWAT	SED	PST	PWG	PQAL	MSTL	PEST	NITR	PHOS	TRAC	***
13			0	0	1	0	0	0	0	0	0	0	0	0	

END ACTIVITY

PRINT-INFO

```

<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST NITR PHOS TRAC  *****
13   0   0   4   0   0   0   0   0   0   0   0   0   0   1   9
END PRINT-INFO

```

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRG  VLE INFC  HWT ***
13   0   0   0   0   0   0   0   0   0   0   0   0
END PWAT-PARM1

```

```

PWAT-PARM2
<PLS > PWATER input info: Part 2 *****
# - # ***FOREST  LZSN  INFILT  LSUR  SLSUR  KVARY  AGWRC
13   0   4.5  0.06  400  0.05  0.5  0.996
END PWAT-PARM2

```

```

PWAT-PARM3
<PLS > PWATER input info: Part 3 *****
# - # ***PETMAX  PETMIN  INFEXP  INFILD  DEEPFR  BASETP  AGWETP
13   0   0   2   2   0   0
END PWAT-PARM3

```

```

PWAT-PARM4
<PLS > PWATER input info: Part 4 *****
# - # CEPSC  UZSN  NSUR  INTFW  IRC  LZETP ***
13   0.15  0.4  0.3  6  0.5  0.4
END PWAT-PARM4

```

```

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS  SURS  UZS  IFWS  LZS  AGWS  GWVS
13   0   0   0   0   2.5  1  0
END PWAT-STATE1

```

END PERLND

IMPLND

```

GEN-INFO
<PLS ><-----Name----->  Unit-systems  Printer ***
# - #  User  t-series  Engr Metr ***
      in  out  ***
1     ROADS/FLAT      1  1  1  27  0
4     ROOF TOPS/FLAT  1  1  1  27  0
8     SIDEWALKS/FLAT  1  1  1  27  0
END GEN-INFO
*** Section IWATER***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT  SLD  IWG IQAL  ***
1   0   0   1   0   0   0
4   0   0   1   0   0   0
8   0   0   1   0   0   0
END ACTIVITY

```

```

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW IWAT  SLD  IWG IQAL  *****
1   0   0   4   0   0   0   1  9
4   0   0   4   0   0   0   1  9
8   0   0   4   0   0   0   1  9
END PRINT-INFO

```

```

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP  VRS  VNN RTLI  ***
1   0   0   0   0   0
4   0   0   0   0   0
8   0   0   0   0   0

```

END IWAT-PARM1

IWAT-PARM2

```

<PLS >      IWATER input info: Part 2      ***
# - # ***  LSUR      SLSUR      NSUR      RETSC
1         400      0.01      0.1      0.1
4         400      0.01      0.1      0.1
8         400      0.01      0.1      0.1

```

END IWAT-PARM2

IWAT-PARM3

```

<PLS >      IWATER input info: Part 3      ***
# - # ***PETMAX    PETMIN
1         0         0
4         0         0
8         0         0

```

END IWAT-PARM3

IWAT-STATE1

```

<PLS > *** Initial conditions at start of simulation
# - # ***  RETS      SURS
1         0         0
4         0         0
8         0         0

```

END IWAT-STATE1

END IMPLND

SCHEMATIC

<-Source->	<Name>	#	<--Area-->	<-factor-->	<-Target->	<Name>	#	MBLK	Tbl#	***
Basin	1	***								***
PERLND	13		0.354		RCHRES	1		2		
PERLND	13		0.354		RCHRES	1		3		
IMPLND	1		0.275		RCHRES	1		5		
IMPLND	4		0.566		RCHRES	1		5		
IMPLND	8		0.127		RCHRES	1		5		

*****Routing*****

PERLND	13		0.354		COPY	1		12		
IMPLND	1		0.275		COPY	1		15		
IMPLND	4		0.566		COPY	1		15		
IMPLND	8		0.127		COPY	1		15		
PERLND	13		0.354		COPY	1		13		
RCHRES	1		1		COPY	501		16		

END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***			
<Name>	#	<Name>	#	<-factor-->	strg	<Name>	#	<Name>	#	***	
COPY	501	OUTPUT	MEAN	1	1	48.4	DISPLY	1	INPUT	TIMSER	1

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***		
<Name>	#	<Name>	#	<-factor-->	strg	<Name>	#	<Name>	#	***

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit	Systems	Printer	***
#	-	#	<----->	<---->	User T-series	Engl Metr LKFG
					in out	***
1	Vault	1		1	1	28 0 1

END GEN-INFO

*** Section RCHRES***

ACTIVITY

```

<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***

```



```

2.133333 0.045546 0.097166 0.104663
2.200000 0.045546 0.100202 0.106286
2.266667 0.045546 0.103238 0.107885
2.333333 0.045546 0.106275 0.109460
2.400000 0.045546 0.109311 0.111012
2.466667 0.045546 0.112348 0.112544
2.533333 0.045546 0.115384 0.114054
2.600000 0.045546 0.118421 0.115545
2.666667 0.045546 0.121457 0.117017
2.733333 0.045546 0.124493 0.118471
2.800000 0.045546 0.127530 0.119907
2.866667 0.045546 0.130566 0.121326
2.933333 0.045546 0.133603 0.122729
3.000000 0.045546 0.136639 0.124116
3.066667 0.045546 0.139676 0.125487
3.133333 0.045546 0.142712 0.126844
3.200000 0.045546 0.145748 0.128186
3.266667 0.045546 0.148785 0.129514
3.333333 0.045546 0.151821 0.130829
3.400000 0.045546 0.154858 0.132131
3.466667 0.045546 0.157894 0.133420
3.533333 0.045546 0.160931 0.134715
3.600000 0.045546 0.163967 0.136012
3.666667 0.045546 0.167003 0.137312
3.733333 0.045546 0.170040 0.138615
3.800000 0.045546 0.173076 0.139921
3.866667 0.045546 0.176113 0.141230
3.933333 0.045546 0.179149 0.142541
4.000000 0.045546 0.182185 0.143854
4.066667 0.045546 0.185222 0.145169
4.133333 0.045546 0.188258 0.146485
4.200000 0.045546 0.191295 0.147803
4.266667 0.045546 0.194331 0.149123
4.333333 0.045546 0.197368 0.150444
4.400000 0.045546 0.200404 0.151766
4.466667 0.045546 0.203440 0.153089
4.533333 0.045546 0.206477 0.154414
4.600000 0.045546 0.209513 0.155740
4.666667 0.045546 0.212550 0.157067
4.733333 0.045546 0.215586 0.158395
4.800000 0.045546 0.218623 0.159724
4.866667 0.045546 0.221659 0.161054
4.933333 0.045546 0.224695 0.162385
5.000000 0.045546 0.227732 0.163717
5.066667 0.045546 0.230768 0.165050
5.133333 0.045546 0.233805 0.166384
5.200000 0.045546 0.236841 0.167719
5.266667 0.045546 0.239878 0.169055
5.333333 0.045546 0.242914 0.170392
5.400000 0.045546 0.245950 0.171730
5.466667 0.045546 0.248987 0.173068
5.533333 0.045546 0.252023 0.174407
5.600000 0.045546 0.255060 0.175747
5.666667 0.045546 0.258096 0.177088
5.733333 0.045546 0.261133 0.178429
5.800000 0.045546 0.264169 0.179771
5.866667 0.045546 0.267205 0.181114
5.933333 0.045546 0.270242 0.182458
6.000000 0.045546 0.273278 0.183803
6.066667 0.045546 0.276315 0.185149

```

```

END FTABLE 1
END FTABLES

```

EXT SOURCES

```

<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # tem strg<-factor->strg <Name> # # <Name> # # ***
WDM 2 PREC ENGL 1.333 PERLND 1 999 EXTNL PREC
WDM 2 PREC ENGL 1.333 IMPLND 1 999 EXTNL PREC
WDM 1 EVAP ENGL 0.76 PERLND 1 999 EXTNL PETINP
WDM 1 EVAP ENGL 0.76 IMPLND 1 999 EXTNL PETINP

```

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***	
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	<Name>	tem	strg	strg***
RCHRES	1	HYDR	RO	1	1	1	WDM	1000	FLOW	ENGL	REPL
RCHRES	1	HYDR	STAGE	1	1	1	WDM	1001	STAG	ENGL	REPL
COPY	1	OUTPUT	MEAN	1	1	48.4	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1	1	48.4	WDM	801	FLOW	ENGL	REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***	
<Name>		<Name>	#	#<-factor-->	<Name>	<Name>	#	***
MASS-LINK		2						
PERLND	PWATER	SURO		0.083333	RCHRES	INFLOW	IVOL	
END MASS-LINK		2						
MASS-LINK		3						
PERLND	PWATER	IFWO		0.083333	RCHRES	INFLOW	IVOL	
END MASS-LINK		3						
MASS-LINK		5						
IMPLND	IWATER	SURO		0.083333	RCHRES	INFLOW	IVOL	
END MASS-LINK		5						
MASS-LINK		12						
PERLND	PWATER	SURO		0.083333	COPY	INPUT	MEAN	
END MASS-LINK		12						
MASS-LINK		13						
PERLND	PWATER	IFWO		0.083333	COPY	INPUT	MEAN	
END MASS-LINK		13						
MASS-LINK		15						
IMPLND	IWATER	SURO		0.083333	COPY	INPUT	MEAN	
END MASS-LINK		15						
MASS-LINK		16						
RCHRES	ROFLOW				COPY	INPUT	MEAN	
END MASS-LINK		16						

END MASS-LINK

END RUN

Predeveloped HSPF Message File

Mitigated HSPF Message File

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